

REMARKS/ARGUMENTS

This is in response to the official action dated January 3, 2007. Claims 21-29 have been amended. No new matter has been added. Claims 21-32 remain pending in this application with claims 21 and 29 being the only independent claims. Reconsideration in view of the amendments to the claims and arguments presented below is respectfully requested.

Claims 21-26 and 28-32 are rejected under 35 U.S.C. §102(e) as anticipated by EP Patent No. 1257096 A2 (Masseroni et al.).

Claim 27 is rejected under 35 U.S.C. §103(a) as obvious over Masseroni et al. in view of U.S. Patent No. 6,747,962 (Lintulampi et al.).

Applicants respectfully traverse the outstanding prior art rejections for the reasons provided below.

Independent Claims 21 & 29

As a preliminary matter the prior art of record fails to address much less specifically disclose the goal and purpose of the present claimed invention.

The problem addressed by the present invention is expressly disclosed in the specification of the present application.

“The methods and processes known to date, as used for measuring and evaluating the quality and for analyzing the potential system errors, have been inconclusive when assessing if the individual data throughput is reduced because several ME/subscribers simultaneously use the resource ‘timeslot’.

Conversely, by implementing the methods of the invention (both separately for each side and in combination) and by using these novel analytical techniques for evaluation, it could be directly demonstrated, where a reasonable increase in the capacity can significantly improve the quality for the subscriber in an efficient and demand-driven manner.”
[Specification of present application: Paragraphs 0034 & 0035]

“Because cells change during a mobile data transmission, this aspect must be taken into consideration in the analysis. Changes in multislot operation as well as in multiuser behavior can be expected after cell changes.” [Specification of present application: Paragraph 0048]

Masseroni et al., in contrast, relates to a procedure for the scheduling of packet data transmission permits on radio channels shared by the mobiles in GSM-GPRS systems. The procedure foresees the establishment of as many priority queues of transmission permits as are the GPRS time-slots, to be used for the scheduling of control and signaling blocks, and of a same number of non-priority queues of permits for the scheduling of RLC blocks of data queued in the buffers of TBF." [Paragraph 0001 & Abstract]. Masseroni et al. therefore fails to recognize nor identify the number of simultaneous subscribers for each timeslot. Instead, timeslot is merely used as a basis for scheduling of packet data transmission permits.

Applicants further submit that the prior art of record fails to anticipate or render obvious the present claimed invention for the reasons provided below.

Claim 21, as amended, is directed to "A method for detecting multiuser behavior on an aerial interface in GPRS and EGPRS mobile radio systems" including the step of "acquiring and evaluating during a transmission of subscriber data on an aerial interface, additional information contained in subscriber data by a device on a network side and/or a subscriber side, both in the uplink and the downlink; and identifying a number of parallel subscribers in used timeslots based on the additional information." (emphasis added)

The Examiner in rejecting claim 21 refers to Masseroni et al. [Paragraphs: 0036-0038] for teaching "the establishment of a TBF uplink connection where the network requires to know the number of blocks that a MS mobile intends [sic] to transmit. In addition, in the download TBF a buffer is allocated to contain the RLC/MAC blocks to be sent." (January 3, 2007 Office Action: Page 3, lines 7-10)

Specifically, these paragraphs of Masseroni et al. disclose "The sub-set of MAC procedures governing the dynamic allocation of resources, provides temporary connections on the physical layer, called TBF (Temporary Block Flow), which include memory buffers to house the queues of RLC/MAC blocks." Furthermore, the "network requires simply knowing the number of blocks that a MS mobile intends to transmit" and a "buffer, relevant to the downlink TBF, is purposefully allocated to contain the RLC/MAC blocks to be sent." [Masseroni et al.: Paragraph 0037](emphasis added)

In contrast to the present claimed invention, Masseroni et al. only discloses monitoring or detecting the number of blocks intended to be transmitted, but fails, as expressly called for in

claim 21, to detect the number of parallel (e.g., simultaneous) subscribers on a single timeslot. Clearly, multiple subscribers may use a single resource timeslot or RLC block. Masseroni et al. expressly discloses [Paragraph 0038] “up to eight users sharing a time-slot”; however, nothing in the Masseroni et al. reference either discloses or suggests that a detected number of blocks intended to be transmitted nor any other information is used to “detect a number of parallel subscribers simultaneously using any one time slot”. Therefore, counting or detecting the number of blocks intended to be transmitted does not read on the present claimed limitation of “identifying a number of parallel subscribers in used timeslots based on the additional information” (emphasis added).

Furthermore, this disclosed value in Masseroni et al. represents the number of blocks “intended” to be transmitted, not the actual number of blocks or timeslots used.

Claim 29 is the apparatus counterpart of independent claim 21 and thus patentable over the prior art of record for at least the reasons expressed above with respect to claim 21.

Dependent Claim 22

Claim 22 calls for (i) “comparing at the beginning of a Temporary Bit Flow (TBF) the number of the used Radio Link Control (RLC) blocks with an actually available and hence usable number of RLC blocks” (emphasis added).

The Examiner maintains that this limitation is disclosed in Masseroni et al. [Paragraphs 0064-0071]. Applicants respectfully traverse the Examiner’s rejection. Masseroni et al. discloses the following parameters or variables: LLC frames allocated for buffered connections DL_TBF for the downlink transfer; LLC frames allocated for buffered connections UL_TBF for the uplink transfer; DL_NumBlocks_TBF_transmit value for each DL_TBF connection; UL_NumBlocks_TBF_transmit value for each UL_TBF connection; RLC/MAC blocks for all downlink TBF; and RLC/MAC blocks for all uplink TBF. All of these values represent allocated, available or the usable number of frames or blocks. Masseroni et al. therefore fails to detect the number of used RLC blocks, much less, a comparison between the number of used RLC blocks with those RLC blocks that are actually available and usable, as found in claim 22.

Moreover, claim 22 also expressly requires the step of “identifying a number of parallel subscribers in used timeslots based on the additional information contained in the RLC blocks”.

In the outstanding Office Action, the Examiner asserts that Masseroni et al. [Paragraph 0038] reads on this limitation stating

“the network assigns each TBF connection a TFI (temporary flow identity) and that the MS assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink. Masseroni further discloses that a RLC data block is identified to the TBF to which it is associated through its own field [sic] and another field to indicate [sic] uplink or downlink direction of the block. Note that since the TFI value is unique it can be used to determine the number of current parallel subscribers in the timeslots.” (January 3, 2007 Office Action: Page 4, ll. 10-16)

The relevant passage from Masseroni et al. cited by the Examiner is reproduced below:

“A TBF [Temporary Block Flow] is kept alive only for the duration of the transfer of one or more LLC protocol units to the right purpose of transferring the corresponding RLC/MAC blocks. The network assigns each TBF connection its own temporary identifier, called TFI (Temporary Flow Identity). The MS mobile shall assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink. A RLC/MAC data block is identified to the TBF to which it is associated through its own field where the identifier TFI is written, and another field to indicate the uplink or downlink direction of the block.” [Paragraph 0038](emphasis added)

First, Masseroni et al. states that the MS mobile must assume that the TFI value is unique among TBF competitors in each direction, uplink or downlink, but fails to expressly state in actuality that this in fact must be the case. In addition, as expressly recognized in Masseroni et al., more than one block may be associated with any one TBF connection. Since each TBF connection is assigned a TFI value then more than one block associated with a single TBF connection may be assigned to the same TFI value. Accordingly, the mere association of a unique TFI value associated with a particular TBF connection would at best account for only a single subscriber for a single TBF or timeslot and not identify multiple parallel or simultaneous subscribers in used timeslots, as called for in claim 22.

Dependent Claim 23

Claim 23 includes the step of “evaluating parameters Uplink Status Flag (USF) and/or Temporary Flow Identifier (TFI) as additional information”. The terms USF and TFI are recognized terms in the art associated with GPRS systems. Masseroni et al. being directed to a GSM-GPRS system also employs an Uplink State Flag (USF) and Temporary Flow Identifier (TFI), however, the reference fails to disclose or suggest the use of these flags specifically for the

detection of parallel subscribers in used timeslots, as found in claim 21, from which claim 23 depends.

Dependent Claim 24

Claim 24 further calls for the step of “determining for the duration of an uplink TBF, how many USF’s are allocated by the network side”. The relevant passages of Masseroni et al. [Paragraphs 0068 & 0072-0073] referred to by the Examiner recognize the use of USF flags during uplink and storage in queues of these flags or those USF flags valid for uplink scheduling. Once again, the prior art reference fails to disclose or suggest determining the number of USF’s allocated by the network side, much less, making this determination for the duration of the uplink TBF, as found in claim 24.

Dependent Claim 25

Similarly, claim 25 calls for “determining for the duration of a downlink TBF, how many USF’s are allocated by the network side” (emphasis added). This claim is patentable over the prior art reference for the reasons provided above with respect to claim 24. Furthermore, Paragraphs 0068 & 0072-0073 of Masseroni et al. cited by the Examiner are directed to uplink transmission, rather than downlink transmission. Lastly, the Examiner concludes “that since USF are sent on the downlink RLC blocks, the USF is considered to be determined [sic] on the duration of the downlink TBF”. (January 3, 2007 Office Action: page 5, lines 7-9) Applicants wish to draw the Examiner’s attention to Masseroni et al. which discloses [Paragraph 0094] that “The uplink case does not require particular measures, is treated without entering any USF in the RLC block to transmit, while in the downlink case the program transmits a Dummy control block, possibly with USF inserted, and proceeds to the next iteration.” Accordingly, it is improper for the Examiner to conclude that “the USF is considered to be determined on the duration of the downlink TBF”.

Even, assuming *arguendo* that the Examiner’s assertion is correct, Masseroni et al. does not disclose tabulating or keeping track of the number of USF’s allocated by the network side, much less, doing so for the duration of a downlink TBF. The mere fact that these values are capable of being tabulated without disclosing such is not a proper *prima facie* case of

obviousness. Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) Therefore, Applicants submit that the prior art of record fails to disclose or suggest “determining for the duration of a downlink TBF, how many USF’s are allocated by the network side”.

Dependent Claim 27

Claim 27 specifies “determining in a static allocation process, the usage of the timeslots for the RLC blocks by counting the data frames”.

Masseroni et al. is directed to a procedure for the scheduling of packet data transmission permits on radio channels shared by the mobiles in GSM-GPRS systems [Paragraph 0001] and is limited exclusively to dynamic, rather than static, allocation of resources [see Paragraphs 0036-0037]. Accordingly, no motivation exists for modifying Masseroni et al. based on the teachings of Lintulampi et al. or any other reference related to static or fixed allocation.

In addition, Applicants submit that Lintulampi et al. is silent whatsoever regarding counting the number of data frames. The Examiner nevertheless asserts that “Lintulampi et al. discloses RLC blocks sent from mobile station to the network. During this operation the network acknowledges the receipt of every RLC block and thus knows the number of data frames that were used. Therefore, it is apparent that the network can determined the usage of the timeslots (figure 4, column 8 line 65-column 9 line 45).” (January 3, 2007 Office Action: Page 8, lines 5-9) First, the mere acknowledgement of receipt of an RLC block is not equivalent to the counting the number of RLC blocks. Second, the Examiner has failed to provide any reference supporting or teaching the proposition that the data frames used may be determined based on the number of RLC blocks acknowledged as being received. Clearly, this is not inferred merely from Lintulampi et al. which fails to mention the data frames whatsoever. Lastly, even assuming, *arguendo*, that the used data frames may be identified, neither reference either alone or in combination thereof discloses the counting of such frames much less that the number of data frames may be used to determine the usage of the timeslots for the RLC blocks, as found in claim 27. The Examiner acknowledges this by stating that “the network *can* determine the usage of the timeslots” despite the reference failing to disclose or suggest this limitation. Although a prior art

device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness.

Dependent Claim 28

Claim 28 includes the step of “evaluating for the entire lifetime of the respective uplink TBF and/or downlink TBF, the RLC data as well as the RLC/MAC control blocks for all TBF's in existence at that time and in all timeslots allocated to the respective TBF”. Thus, two parameters must be evaluated: (i) the RLC data and RLC/MAC control blocks in existence at that time; and (ii) the RLC data and RLC/MAC control blocks in all timeslots allocated to the respective TBF.

Despite the fact that Masseroni et al. recognizes the allotted RLC data and the RLC/MAC control blocks, the prior art reference does not disclose or suggest such evaluation of the RLC data and RLC/MAC control blocks in existence at that time. In addition, claim 28 further calls for the step of “determining based on these data if a multiuser operation has occurred at the time of the data transmission”. As presented above in the arguments with respect to the preceding claims, Masseroni et al. fails to disclose or suggest the identification or detection of multiuser operation, as found in claim 28.


CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition therefor. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,
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